United States Patent [19]

Kim

[11] **4,416,551**

[45] **Nov. 22, 1983**

[54] **BATTERY MICROCALORIMETER**

[75] Inventor: **Kwang-Yil Kim**, Bloomington, Minn.

[73] Assignee: **Honeywell Inc.**, Minneapolis, Minn.

[21] Appl. No.: **300,878**

[22] Filed: **Sep. 11, 1981**

[51] **Int. Cl.**[3] **G01K 17/00**

[52] **U.S. Cl.** **374/31**

[58] **Field of Search** 374/10-12, 374/31, 33, 34; 436/147; 422/51

[56] **References Cited**

U.S. PATENT DOCUMENTS

3,059,471	10/1962	Calvet	374/10
3,670,570	6/1972	Briones	374/32
3,813,937	6/1974	Fletcher	374/33
3,877,877	4/1975	Prosen	422/51

OTHER PUBLICATIONS

Evans et al. "A Microcalorimeter Using Semiconductors as the Sensing Elements" in *Chemical Instrumentation* vol. 2(2), pp. 249-255, 10/69.

Evans et al. "A Microcalorimeter Especially Suited for the Study of Small Quantities of Materials, " in *Analytical Chem.* vol. 40, 1/68, pp. 262-264.

Primary Examiner—Herbert Goldstein

Attorney, Agent, or Firm—George W. Field

[57] **ABSTRACT**

A battery microcalorimeter comprising a thin sample container, a pair of heat sinks having faces apposed to the faces of the container, and a pair of thermopiles having first faces thermally engaging the faces of the container and second faces thermally engaging the faces of the heat sinks. The container is divided into separate chambers, one receiving the non-liquid elements of the battery cell, and the other receiving a heater with electrolyte. By tilting the container electrolyte is transferred between the chambers.

3 Claims, 6 Drawing Figures